Pat Appl. 09/902,227, reply to Office Action, 2nd of July 2009

Claims

1. (currently amended): A method for electronically displaying a target image with an animated microstructure, said method being performed by a computing system where the target image rendered by said computing system is made of a succession of target image instances which differ from each other by an embedded microstructure evolving which evolves over time, the method comprising the steps of

(a) defining within a memory of said computing system a two-dimensional original image;

(b) defining within a memory of said computing system a time-dependent geometric animation transformation between an original microstructure space and a transformed microstructure space, said transformation specifying how said embedded microstructure spatially evolves in successively displayed target image instances; and

(c) rendering on a display of said computing system from said two-dimensional original image said succession of target image instances comprising said embedded microstructure evolving over time,

where said rendering step comprises computer performed steps a of

(i) mapping of positions between target image instances and positions within said original microstructure space according to said time-dependent geometric animation transformation and a of

(ii) halftoning of said two-dimensional original image;

where said embedded microstructure comprises is made of visual motive elements selected from a set of text, logo, symbol and ornament;

where said halftoning step converts intensities into surface coverages of a limited set of basic colors, thereby adapating adapts intensities, respectively colors of said visual motive elements to intensities, respectively colors of said two-dimensional original image;

where said visual motive elements evolve spatially independently of a content of said two-dimensional original image ;

where, due to said time-dependent geometric animation transformation, said visual motive elements evolve smoothly and continuously;

where the target image instances represent simultaneously at a global image level the spatially continuous original two-dimensional image and at a microstructure level said visual motive elements; and

where said target image instances shown on said computer display provide to a human observer visually attractive and useful information.

2. (canceled)

6

Pat Appl. 09/902,227, reply to Office Action, 2nd of July 2009

3. (previously presented): The method of claim 1, where only a part of said two-dimensional original image defined by a mask is rendered with said embedded microstructure.

4. (currently amended): The method of claim 1, where an additional step performed on said computing system enables to specify specifies a said limited set of basic colors for rendering said target image instances.

5. (currently amended): The method of claim 4, where said two-dimensional original image is halftoned said halftoning step is carried out by dithering at least one of the basic colors with a dither matrix embedding the microstructure.

6. (canceled).

7. (currently amended): The method of claim 4, where said halftoning step is carried out by multicolor dithering with the defined said limited set of basic colors and with a dither matrix embedding the microstructure made of said visual motive elements.

8. (canceled).

9. (canceled).

10. (currently amended): The method of claim 1, where the evolution of said embedded microstructure over time comprises a blending between two of the motive elements microstructure shapes.

11. (canceled)

12. (canceled)

13. (currently amended): The method of claim 1, where the embedded microstructure is made more flexible by an additional warping transformation mapping performed by said computing system between a target image space containing the target image and an animated dither matrix space defined by said time-dependent geometric animation transformation.

14. (canceled)

15. (canceled)

16. (canceled)

17. (canceled)

18. (canceled)   7

Pat Appl. 09/902,227, reply to Office Action, 2nd of July 2009

19. (canceled)

20. (canceled)

21. (canceled)

22. (canceled).

23. (canceled)

24. (currently amended): A computing system rendering on a computer display a target image displayed on a computer screen by a computing system comprising a succession of target image instances which differ from each other by an embedded microstructure which evolves evolving smoothly over time, said computing system running a microstructure image rendering software, said software rendering from an original two-dimensional image stored in a memory of said computing system the succession of target image instances comprising said embedded microstructure evolving over time, where said computing system rendering comprises a computing module for mapping of positions between target image instances and positions within an original microstructure space according to a time-dependent geometric animation transformation and comprises a computing module for halftoning of said two-dimensional original image;
where said embedded microstructure comprises is made of visual motive elements selected from a set of text, logo, symbol and ornament;
where said halftoning computing module converts the original two-dimensional image intensities into surface coverages of a limited set of basic colors, thereby adapting adapts intensities, respectively colors of said visual motive elements to intensities, respectively colors of said two-dimensional original image;
where said visual motive elements produced by said halftoning computing module evolve spatially independently of a content of said two-dimensional original image;
where, due to said time-dependent geometric animation transformation, said visual motive elements evolve smoothly and continuously;
where the target image instances represent simultaneously at a global image level the spatially continuous original two-dimensional image and at a microstructure level said visual motive elements and
where said target image instances shown on said computer display provide to a human observer visually attractive and useful information.

25. (currently amended): The computing system rendering the target image of claim 24, where the visibility of the embedded microstructure is tuned by a mask whose values represent relative weights of said original two-dimensional image without embedded microstructure and a corresponding image rendered with the embedded microstructure.

8

26. (currently amended): The computing system rendering the target image of claim 25, where the mask values evolving over time yield apparent changes in at least one of the embedded microstructure appearance properties selected from a set of visibility, position and spatial extension properties.

27. (currently amended): The computing system rendering the target image of claim 25, where contributions of said two-dimensional original image and said image rendered with the embedded microstructure are spatially distributed.

28. (currently amended): The computing system rendering the target image of claim 24, where the halftoning operation computing module is performed by a dithering method performs a dithering operation taking as input said two-dimensional original image and producing produces with said limited set of basic colors a dithered image, said dithering operation method being selected from the set of standard dithering and multicolor dithering methods.

Claims 29-33 (canceled).

34. (currently amended) A computing system for electronically displaying rendering on a display a spatially continuous target image with an embedded microstructure evolving over time, said computing system comprising a server computing system located at one Internet location for rendering said target image from an original image by synthesizing target image instances and comprising a client computing system located at another Internet location receiving a sequence of instances of said target image instances from the server computing system and displaying the target image instances on said display, where a time-dependent geometric animation transformation specifies how said embedded microstructure spatially smoothly evolves over a succession of displayed target image instances, where said embedded microstructure comprises is made of visual motive elements selected from a set of text, logo, symbol and ornament, where said visual motive elements evolve spatially independently of a content of said original image;

where said server computing system comprises a computing module for mapping of positions between target image instances and positions within an original microstructure space according to said time-dependent geometric animation transformation and comprises a computing module for halftoning of said two-dimensional original image;

where said halftoning computing module synthesizing synthesizes the target image instances from said original image comprises a halftoning operation which by converting original image intensities into surface coverages of a limited set of basic colors intensities, respectively adapts thereby adapting colors of said visual motive elements to intensities, respectively colors of said two-dimensional original image;

where, due to said time-dependent geometric animation transformation, said visual motive elements evolve smoothly and continuously; and

where said target image instances shown on said display provide to a human observer visually attractive and useful information.

9

35. (currently amended) The computing system of claim 34, where the server computing system is a Web server and where the ~~sequence of~~ target image instances ~~is~~ are displayed by the client computing system within a Web page.

36. (currently amended) A computing system displaying a spatially continuous target image with an embedded microstructure spatially evolving over time, said computing system comprising a server computing system located at one Internet location and a client computing and display system located at another Internet location, where the client computing and display system receives from the server computing system as input data an original color image, microstructure data and microstructure evolution parameters and where the client computing and display system renders said target image from said original color image by synthesizing target image instances with said embedded microstructure on the fly, where said embedded microstructure ~~comprises~~ is made of visual motive elements selected from a set of text, logo, symbol and ornament, where the microstructure evolution parameters comprise a time-dependent geometric animation transformation specifying how said embedded microstructure spatially evolves over a ~~the~~ succession of displayed target image instances, where said visual motive elements evolve spatially independently of a content of said original color image , ~~and~~ where rendering by said client computing and display system the target image instances from said original image comprises executing a halftoning operation which converts intensities into surface coverages of a limited set of basic colors, ~~adapts intensities, respectively~~ thereby adapting colors of said visual motive elements to ~~intensities, respectively~~ colors of said ~~two-dimensional~~ original color image;
where, due to said time-dependent geometric animation transformation, said visual motive elements evolve smoothly and continuously; and
where said target image instances shown by said client computing and display system provide to a human observer visually attractive and useful information.

37. (currently amended) The computing system of claim 36, where the microstructure data received by the client computing and display system comprises a dither matrix, and where the client computing and display system executing said halftoning operation synthesizes as target image instances dithered images by performing an operation ~~target image is a dithered image generated by a method~~ selected from the set of standard dithering and multicolor dithering.

38. (currently amended) The computing system of claim 36, where the microstructure evolution parameters also comprise a warping transformation and where the client computing and display system also receives from the server computing system as input data a mask whose values represent relative weights of the original color image and of image instances obtained by executing said halftoning operation, the mask defining the position and visibility of the microstructure within the target image.

Claims 39-45 (canceled).

10